Chapter 6 – Nursery Operations

6.1 Purpose

The King County Park System's Horticultural Center Nursery is a cost-effective operation that produces plants for reforestation and re-vegetation of wetlands and sensitive areas and landscapes. Strict operational practices are followed to produce high-quality and healthy plants. This chapter identifies and defines these BMPs.

6.2 Definitions

Clean Green: refers to various plant debris such as leaves or pruned limbs that has not been contaminated with garbage and is suitable for recycling and composting.

Cold House: refers to greenhouse kept at 50° to 65° F. Used for outside plants needing protection from freezing or being "hardened" off for placement outside.

Nursery: a facility for propagating, growing and holding plants used on Parks' property.

Potting Shed: refers to an open-air, 80-by-15-foot covered area with a cement floor. Shed features a 15-foot-long, aluminum table set on casters. Potting table provides both work surface and holding area to dispense soil.

Public Operator: person licensed by WSDA to apply pesticides on public property.

Shade house: refers to a greenhouse-type structure that protects nursery plant crops from sun.

Warmhouse: refers to a greenhouse kept at 60° to 75° F. Used to "actively" propagate and grow plants on to larger sizes.

6.3 Background

Horticultural Center Nursery

The King County Park System and departments of Construction and Facilities Management and Community and Human Services operate the 4.5-acre Horticulture Center Nursery. The nursery is located on the campus of the King County Chemical Dependency Treatment Center at 15900 227th Southeast in Maple Valley, Washington.

The Horticultural Center Nursery specializes in growing Pacific Northwest native plants and adapted ornamental trees and shrubs. These plants are used for habitat restoration, reforestation, and landscape restoration projects in King County parks.

The nursery is located on the same site as the two County greenhouses. Some nursery plants are propagated in the greenhouse. Others are collected from seedlings in parks. And a few others are purchased. After the plants grow to a specific size, they are transplanted to containers and moved into the nursery or landscape. Other plants grown from plugs or cuttings are transplanted in potting sheds and grown to distribution size.

It is important to keep the nursery and greenhouse areas from reaching capacity. This can be accomplished by District and users' follow-through with plant pickup and distribution. Additional holding areas may be developed within districts to store needed plant materials.

The Horticulture Center Nursery contains the following features:

- Office and storage buildings.
- Growing fields.
- Potting sheds (interior and exterior).
- Soil bins.
- Container yard.
- Shade house.
- Pumphouse for water well.

Basic Operating Plan

- Most nursery operation is containerized. Plants are grown in containers to various sizes for eventual planting onto park property. A containerized operation is cleaner, less labor intensive and more organized than in-ground plantings.
- A computer inventory database has been installed to monitor the plant inventory. The database records current inventory, incoming requests and plants already obligated to projects.
- Computer connection to the King County network provides immediate access to current plant inventory. It also allows easy access to ordering plants or to communicate plant propagation needs.

6.4 Plant Selection

The nursery is not designed to carry a large inventory of plants. For that reason, it is essential to forecast plant needs well in advance. While some host plants are held over for propagating, maintaining surplus plants is not cost effective.

- District staff and Resource Coordinators generally determine the types and quantities of plants selected for propagation.

- Certain ornamental and native plants are propagated based on history and project projections.
- Some plants are grown for "stock plants" and maintained for propagation.

6.5 Maintenance Practices

The following are standard practices for preparing and maintaining plants grown at the Horticulture Center Nursery.

Site Preparation

- Ensure all plants in the growing area have adequate drainage. Leave no plants sitting in water or on saturated soil.
- Test imported soil as needed to determine need for amendments or nutrients. Monitor for pests and composition.
- Use a mixed soil formula for all container plants. It is heat treated to kill pathogens, weed seeds and insects. The basic mix is 20% compost, 15% peat, 25% pumice and 40% decomposed bark, with 1 lb. calcium nitrate/cubic yard.
- Place all containers on clean weed fabric or gravel.

Site Maintenance

- Control or remove noxious weeds during site preparation.
- Maintain roads and pathways on an annual basis to ensure accessibility.
- Do not allow the general public access to the nursery grounds except and unless a pre-approved Parks' staff person is present.
- Do not allow any leachate from nursery or greenhouse operations to reach the water table and migrate downstream. Ground water on site is controlled and regulated through pumping by the King County Department of Natural Resources through the Cedar Hills landfill operations.
- Use silt fences when and where appropriate.

6.6 Cultural Care

The following are preventive maintenance techniques we use to ensure quality of nursery grown plants.

- Prune plants according to American Association of Nurserymen standards (or Parks-approved equivalent). Pruning as needed ensures good health and structure.
- Root prune field-grown container plants annually to ease transplanting and replanting. Root pruning prevents girdling and encourages feeder root growth.

- Place all plants to allow for optimal growth, especially in field-growing areas.
- Repot containerized plants as needed. Repotting prevents girdling.
- Water all plants as needed. Warmhouse plants are on an automatic, overhead irrigation system. The field system utilizes manual hoses and sprinklers. Operate it in a manner that conserves water.
- Use irrigation water efficiently.
  - Group plants by size and water needs.
  - Water on an as-needed basis.
  - Use the most efficient system for watering individualized planting areas. In most cases the use of sprinklers to provide overhead watering is most appropriate. Where plants are dissimilar in size or species, manual watering may be required.
  - Avoid watering areas where plants are not being held.
  - Schedule winterization, periodic and preventive maintenance with Parks' Irrigation Specialists.
  - Support recycling.
  - Use compost whenever possible.
  - Reuse cleaned growing containers Recycle greenhouse soil for nursery use or re-sterilize and use it for greenhouse plants.
  - Reuse soil from containers or park planting projects whenever possible.
  - Plants must be fertilized as needed. Use a slow-release fertilizer like Osmocote™.
  - Provide winter protection for plants as needed through the existing warm- and cold houses. Hold smaller, tenderer plants either in greenhouses or harden off and mulch.
  - Root dry and winter-over bulbs, cannas and dahlias in vented trays in cold house away from moisture and water.

6.7 IPM

Pest control in the nursery is important because of the potential for widespread distribution of infested plant material.

Thresholds

Pests that threaten the health of the nursery crops are not tolerated and are controlled through IPM.

Control Strategies

Surface and Ground Water Protection

- Select the least toxic and most non-leaching chemical products for use only when necessary.
- Precisely follow all label instructions.

Weed Control

- Control weeds by hand weeding or landscape fabric.
- When other controls have failed, use Roundup Pro™ herbicide for spot control of weeds. A licensed Public Operator is the only person allowed to apply herbicides. Follow regulations and document application according to WSDA requirements.

Disease Control

- Select disease-resistant plant varieties.
- Monitor plant crops for disease outbreaks.
- Practice good cultural practices including proper watering, fertilizing, pruning and maintaining good air circulation.
- Reduce the potential for transfer of disease through good sanitation techniques. These practices include keeping growing and potting areas, tools and containers clean, pressure washing fabric, tables and floors, sterilizing soils and removing plant litter and debris in a timely manner.

Biological Pest controls

- Encourage habitat for natural insect pest predators. It is an environmentally sound means of reducing insect pest populations.

6.8 Training

The King County Park System has an ongoing safety program. In addition, the Horticulture Center Nursery is developing a basic program for our staff and volunteers. This training includes a horticulture and landscape training program for District staff.

We encourage staff to seek additional training to broaden their skills. Parks should encourage and support staff actively pursuing and involved in professional organizations.